

REMARKS

Claims 1-9 are all the claims pending in the application. These claims stand rejected under 35 U.S.C. § 102(e) as being anticipated by Tong et al. (U.S. Patent No. 6,352,803). These claims also stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tong et al. in view of Brooks et al. (U.S. Patent No. 6,696,205). Applicants have amended claim 1 to more clearly define an exemplary embodiment of the invention, and respectfully submit that the claims distinguish the present invention from both Tong et al. and Brooks et al., alone or in combination. Applicants have added new claims 10 and 11 to further define features of the present invention.

Tong et al.

Table 1 of Tong merely discloses that stress adjustment is made possible by the annealing treatment with respect to chromium oxynitride and TaSi.

By contrast, according to the present invention, the heat treatment is carried out after the deposition at the temperature higher than the deposition temperature of the stress correction film. After the deposition is carried out under such a temperature condition, the heat treatment is additionally performed. Thus, it is possible to correct the film stress without deterioration of the optical characteristic of the multilayer reflection film. This is an advantage which is not disclosed or suggested in Tong.

(2) Herein, in the present invention, as recited in amended claim 1, "the heat treatment is carried out at the temperature higher than the deposition temperature". Specifically, merely to cancel the stress of the multilayer reflection film, it is sufficient as long as the deposition is carried out by preliminarily adjusting the film stress at the deposition temperature so that the

stress correction film has the film stress opposite in direction to film stress of the multilayer reflection film and same in absolute value as the film stress of the multilayer reflection film and by depositing the multilayer reflection film thereon and it is unnecessary to additionally perform the heat treatment under the temperature condition different from that of the deposition after the deposition.

However, with respect to the deterioration (reduction in reflectance) of the optical characteristic of the multilayer reflection film, if the reflection multilayer film is subjected to a high temperature treatment of 300°C or more, the reflectance is reduced by the diffusion at the interface of each layer of the multilayer reflection film. Further, the reflectance is affected also by the surface roughness of the stress correction film as the underlayer.

By taking the above-mentioned facts into consideration, heat treatment is additionally carried out after the deposition at the temperature higher than the deposition temperature according to the present invention.

Specifically, first, the deposition of the stress correction film is carried out by selecting the deposition temperature, the sputtering condition and the material so that the reflectance caused by the surface roughness of the multilayer reflection film formed thereon is not reduced. In other words, the deposition is carried out at an exemplary temperature such that surface roughness is reduced, rather than such that the stress of the stress correction film upon the deposition is increased in value.

Second, the material of the stress correction film is selected so that the stress is corrected at such a temperature or less that causes the reduction of the reflectance by the interface diffusion of each layer of the multilayer reflection film upon the heating treatment after forming the multilayer reflection film.

Specifically, by appropriately utilizing the effect for reducing the compression stress due to the heat treatment of the multilayer reflection film and the effect for increasing the tensile

Amendment Under 37 C.F.R. § 1.111
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stress due to the heat treatment of the stress correction film, the stresses can be sufficiently canceled even at 200 °C or less.

(3) By contrast, Tong does not teach about the heating temperature, or the surface roughness of the stress correction film as the underlayer of the multilayer reflection film and the affect given to the optical characteristic of the multilayer reflection film.

Brooks et al.

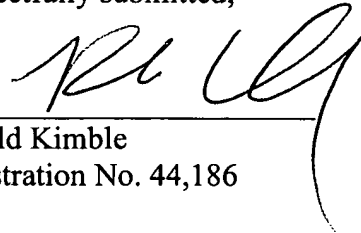
Brooks relates to the mask for use in the EPL. Further, the stress correction is performed for not the multilayer reflection film but the scattering layer. Therefore, it is unnecessary to take the reduction of the reflectance into consideration.

As such, Applicants respectfully submit that the claims distinguish from both Tong and Brooks, and are in form for allowance.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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CUSTOMER NUMBER

Date: November 21, 2005